

Minutes

NPA Safety and Health Teleconference 7/11/01

Attendees:

Bonnie King, Area Office
Jackie Couture, Sidney
Glen Becker, Clay Center
Todd Bowman, Clay Center
Becky Wald, Mandan
JoAnne Gresens, Manhattan
Glen Trostle, Logan

Alvin Harding, Lincoln
Gene Life, Miles City
Shane Hott, Cheyenne
Johnny Thomas, Fort Collins
Scott, Fargo
Gene Uhler, Akron
Chad Nielson, Brookings

Review of Last Month's Telecon Minutes (JoAnne):

- No changes.

Update on SHEMB Conference-FY2000 (Bonnie):

- Terry Roark is asking for a variance on the \$25,000 limit so that more safety personnel can attend. Bonnie said that the estimated cost to attend, including travel and per diem, is around \$1500. Bonnie also has another NPA Safety Conference proposed in her 6-year plan, but will need to talk to Tina about it.

Industrial Hygiene Baseline Survey (All):

- 12 people responded with information regarding their computer systems and it appears they all have the capability of running the Forms software. Alvin reminded us that the software can be used for other applications and not just the IH survey. One thought is that in the future we might redesign the 404 inspection form for palm use.

Element K Training (Bonnie):

- Bonnie would like us all to become familiar with the use of Access and Excel. Hank Davis purchased several licenses which were distributed to the location's computer personnel. If anyone is interested in using this online training to develop their skills, get authorization from your supervisor and computer support personnel. This is another good idea for your IDP.

Occupant Emergency Plans (Bonnie):

- As a follow up to the ARMPS reviews, Dr. Blackburn has requested some locations to complete and/or update their Occupant Emergency Plans by September 1. Bonnie provided the P&P referenced (240.3) along with a template that can be modified to suit your location. <http://www.ars.usda.gov/afm2/ppweb/240-3e~1.htm#H1>

Recordkeeping Standard (Alvin):

- Alvin reported that the changes in the recordkeeping standard will go into place as scheduled with two exceptions that will be on hold for one year. They dealt with hearing loss and MSDs. The new forms are posted on the NPA safety website.

Ergonomics Team Leader (Bonnie):

- Bonnie again asked for a volunteer and received no response.

Brain Teaser (Bonnie):

Problem: Twenty liters of ethylene oxide gas is released in a 25 ft x 40 ft x 9 ft laboratory. Assuming no general room ventilation and complete mixing, what is the concentration of ethylene oxide in ppm?

Solution:

Parts per million (ppm) calculations in industrial hygiene usually involve gases and vapor, and unless otherwise specified represent volume to volume ratios (v/v). However, for aqueous solutions ppm is always a mass to mass ratio represented as ppmw (i.e., 10 ppm represents 10 mg per 1,000 grams of solution or 10 mg/liter since the density of water is 1 gram/mL). Typical industrial hygiene problems are based either on the release of a known volume (mL) of gas in a given room or spilling a given quantity in a room or vessel. These are almost always volume / volume calculations. Remember, reporting results as ppm does not tell us about the mass of material in the air. Therefore, 10 ppm of methylene chloride vapor and 10 ppm of methyl methacrylate vapor represent different masses of material in air (i.e., different number of milligrams per cubic meter). The basic approach is to determine the volume of the room or vessel and then proceed to substitute the known terms in the formula below. Be careful that both volume terms are in the same units, usually either cubic feet or liters.

$$\text{FORMULA: } Ppm = \frac{V_{gas}}{V_{air}} \times 10^6$$

where: *ppm* = concentration in parts per million

V gas = volume of gas

V air = volume of air

To solve:

1. Calculate room volume in cubic feet:
 $25 \text{ ft} \times 40 \text{ ft} \times 9 \text{ ft} = 9,000 \text{ ft}^3$
2. Convert cubic feet to liters:
 $9,000 \text{ ft}^3 \times 28.32 \text{ L/ft}^3 = 254,900 \text{ L}$
3. Substitute in formula:
$$\text{ppm} = \frac{20}{254,900} \times 10^6$$
4. Solving:
$$\text{ppm} = 78.5$$

Answer:

20 liters of ethylene oxide released in a 25 ft³ x 40 ft³ x 9 ft³ x room will produce a concentration of 78.5 ppm in the room air after complete mixing.

The TLV is 1 ppm.

Next Teleconference:

- August 8, 2001 at 1:00 P.M. MST